

APPENDIX C: Technical Notes

I. Survey Response Rates

SURVEY RESPONSE RATES*			
<u>Year</u>	<u>Self-Report Rate</u>	<u>Year</u>	<u>Self-Report Rate</u>
1966	96.3	1982	95.3
1967	97.3	1983	95.5
1968	97.6	1984	95.1
1969	96.6	1985	94.8
1970	98.1	1986	93.5
1971	97.5	1987	93.1
1972	97.3	1988	92.9
1973	97.5	1989	92.3
1974	94.2	1990	93.6
1975	97.3	1991	94.6
1976	97.2	1992	95.1
1977	96.6	1993	94.7
1978	96.3	1994	94.6
1979	96.4	1995	94.1
1980	96.2	1996	92.8
1981	95.7	1997	90.8

* The rates for 1965-1996 reflect late responses. The rate for 1997 may increase slightly in the next year if additional questionnaires are received after survey closure. Self-report rates for 1980-1997 are determined from the "source of response" indicator in the doctorate records. Because this indicator was not coded prior to 1980, survey forms for 1965-1979 are assumed to be self-reported if "month signed" or "marital status" is present. "Marital status" is not available from sources other than the doctorate recipient.

As shown in the table above, 90.8 percent of 1997 recipients of U.S. doctorates completed survey forms. This percentage is referred to as the "self-report" rate. For the remaining doctorate recipients, "skeleton" records were created using basic information obtained from doctorate granting institutions or from commencement programs. This skeleton information includes Ph.D. institution, Ph.D. field, Ph.D. year, and sex of Ph.D. recipient. With regard to the latter, it should be noted that sex was not always available even for survey respondents. Every effort was made to obtain this information for as many respondents as possible. For a small percentage, this could not be done with confidence. Thus, there are missing data for many of the tabulations involving sex in this year's report. In previous years, whenever sex was missing, the data were assigned to "male." In 1997, this practice was discontinued. However, for consistency with previously published results from earlier reports, this procedure

was used for years prior to 1997 in all trend tables. The tabulations involving sex for 1997 exclude missing cases.

Wherever possible this report includes data from all Ph.D. records whether complete or skeletal; thus the reported total number of Ph.D. recipients for 1997 (42,705) includes both respondents and non-respondents. Response rates are highest for tabulations involving these variables: Ph.D. institution, Ph.D. field, Ph.D. year, and sex of Ph.D. recipient.

II. Item Response Rates

The table on the following pages shows the response rates for each item in the Survey of Earned Doctorates for 1997. The numbers and percentages shown in the tables and figures in the body of the Summary Report are based only on the number of doctorate recipients who responded to the applicable survey items. For cross-tabulations, the response rate for a given tabulation will lie between the response rates for the items involved in the tabulation.

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II. ITEM RESPONSE RATES, 1987-97

Variable		1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Name	Field											
PHDFICE	Ph.D. FICE Code	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	NA
RACE	Race/Ethnic Group (Recoded)	90.3	90.6	90.2	93.9	95.3	95.6	96.2	97.1	96.6	95.8	92.5
PHDENTRY	First Grad. Year in Ph.D. Instn.	NA	NA	NA	NA	NA	NA	86.9	86.7	86.5	85.5	78.4
SRCE1ED	Primary Source of Support (Edited)	83.2	83.3	82.5	78.1	77.6	69.7	66.2	72.4	74.9	87.9****	87.2
PDWK1ED	Primary Work Activity (Edited)	62.0	61.4	61.4	56.2	55.9	55.7	54.7	56.3	56.6	60.8	60.0
		(92.2)	(92.6)	(92.4)	(83.8)	(83.8)	(83.5)	(83.3)	(86.1)	(86.8)	(93.3)	(94.4)
PDWK2ED	Secondary Work Activity (Edited)	39.5	38.9	39.2	39.5	39.5	37.4	36.7	38.2	38.4	48.5	51.4
		(58.7)	(58.6)	(58.9)	(58.9)	(59.3)	(56.0)	(55.8)	(58.4)	(58.8)	(74.4)	(80.9)
EDFATHER	Father's Education	88.2	88.8	88.3	90.8	92.3	93.1	92.7	92.7	92.3	91.4	88.8
EDMOTHER	Mother's Education	87.1	88.2	87.5	90.5	92.2	93.0	92.6	92.5	92.1	91.6	89.1
BIRTHYR	Year of Birth	93.6	95.8	92.4	96.6	98.2	97.7	97.3	98.2	97.5	96.8	92.5
BIRTHPL	Place of Birth	92.6	92.5	91.8	92.1	94.1	95.1	94.9	94.8	94.5	93.0	89.9
SEX	Sex	100.0	100.0	100.0	100.0	99.6	99.4	99.2	99.6	99.6	99.5	99.1
MARITAL	Marital Status	91.4	91.6	91.0	91.7	91.5	92.0	91.6	91.5	91.0	91.6	88.6
DEPENDS	Number of Dependents	84.9	85.8	85.8	90.0	89.5	89.8	89.8	89.7	89.4	89.4	87.6
CITIZ	Citizenship	93.2	92.9	92.3	96.2	97.9	97.6	97.1	98.2	97.9	96.9	91.5
CNTRYCIT	Country of Citizenship	19.8	20.8	21.7	26.4	29.2	30.3	30.2	31.9	31.3	31.3	25.7
		(89.3)	(89.3)	(90.1)	(97.2)	(98.0)	(98.5)	(98.6)	(99.3)	(99.4)	(98.5)	(96.5)

NOTE: NA = not available.

*Because this field is not applicable to all doctorate recipients, the response rate will always be under 100%.

**There are no Carnegie Codes for Research Institute of Scripps Clinic/CA (new in FY 1994), Annenberg Research Institute/PA (not doctorate-granting after FY 1992), St. Stephens College/MA (defunct), and Woodstock College/NY (defunct).

***The percentage represents the race/ethnic groups standardly reported by OSEP/NRC; multiple and "other" races are excluded.

****As of FY 1996, the percentage includes recipients who said they had no primary source of support.

*****The percentages on the first line are based on the total doctoral cohort for a fiscal year. The percentages on the second line (enclosed in parentheses) are based on the number of recipients who reported plans for postdoctoral employment.

Variable		1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Name	Field											
RACERAW	Race/Ethnic Group	90.3	90.6	90.2	93.9	95.3	95.6	96.2	97.1	96.6	95.8	92.5
HANDICAP	Handicap Indic. (incl. "No" from 1989-present)	1.4	1.7	91.0	92.4	93.4	93.9	93.6	93.7	93.3	91.7	89.4
HSPLACE	Place of High School	92.3	90.6	89.8	90.8	93.5	94.5	94.0	93.9	93.5	92.1	89.5
HSYEAR	Year of H.S. Graduation	90.3	89.2	88.5	90.5	90.9	92.1	92.1	91.7	91.6	90.4	88.3
JRCOLL	Jr. Coll. Indic. (incl. "No")	89.4	90.2	89.1	90.8	92.0	92.7	92.9	92.5	92.3	90.5	90.8
REGNURSE	Registered Nurse	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1
CEPLACE	Place of College Entrance	91.6	90.5	90.3	90.8	91.8	92.7	92.8	92.3	92.1	90.5	81.9
CEYEAR	Year of College Entrance	90.5	89.7	89.3	90.1	91.3	92.2	91.7	91.5	91.2	89.0	82.0
BAINST	Baccalaureate Institution	95.2	96.1	94.4	95.7	96.5	96.4	96.3	96.6	95.8	94.9	88.6
BAFIELD	Field of Baccalaureate	90.9	90.6	90.3	91.0	92.3	92.4	91.9	91.6	90.9	89.2	82.1
BAYEAR	Year of Baccalaureate	94.1	95.4	93.2	95.0	95.5	96.0	95.7	96.2	95.5	94.7	87.7
BANONE	No Baccalaureate/Master's	0.6	0.7	0.6	1.1	1.1	0.9	8.6*****	9.1*****	9.7*****	11.4*****	6.9*****
GEYEAR	Year of Graduate Entrance	89.0	88.5	88.2	86.6	89.4	89.5	88.6	88.2	87.4	85.7	76.7
MAINST	Master's Institution	78.8	78.3	77.5	78.2	78.4	79.0	78.6	78.9	78.0	77.2	72.0
MAFIELD	Field of Master's	75.9	75.3	74.6	75.5	76.3	77.0	76.1	76.1	75.3	74.5	68.3
MAYEAR	Year of Master's	77.3	76.7	75.9	76.7	77.1	77.7	77.0	77.1	76.3	75.5	70.7

NOTE: NA = not available.

*The percentages of the first line are based on the total doctoral cohort for a fiscal year. The percentages on the second line (enclosed in parentheses) are based on the number of non-U.S. citizens in that year.

**The percentage represents the race/ethnic groups standardly reported by OSEP/NRC; multiple and "other" races are excluded.

***The percentages from 1985-1988 represent the numbers of Ph.D.s with handicaps. Beginning in 1989, the response rates include Ph.D.s who reported "no" handicap. Note: The definition of "handicapped" was much more restrictive in 1990 and 1991.

****Because this field is not applicable to all doctorate recipients, the response rate will always be under 100%.

*****Because this field is not applicable to all doctorate recipients, the response rate will always be under 100%. Note; "No Baccalaureate/Master's" represents only "no baccalaureate" from 1983 to 1992. Beginning in 1993, it indicates that the Ph.D. held no baccalaureate and/or master's degree.

Variable		1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Name	Field											
PROFDEG	Type Professional Doctorate	1.2	1.1	1.3	1.3	1.6	1.6	1.6	1.7	1.8	1.9	1.9
PROFYEAR	Year Professional Doctorate	1.2	1.1	1.3	1.3	1.6	1.5	1.6	1.7	1.8	1.9	1.7
PHDINST	Doctorate Institution	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PHDFIELD	Field of Doctorate	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	98.5
PHDCY	Calendar Year of Doctorate	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PHDMONTH	Month of Doctorate	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PHDFY	Fiscal Year of Doctorate	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PHDTYPE1	Type of Doctorate	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	95.0
PHDTYPE2	Applied Research Doctorate	2.9	3.1	2.8	2.6	2.3	2.4	2.4	2.7	2.5	2.2	0.9
TOCEBA	Time Out CE-BA	89.2	88.3	88.0	88.5	89.7	90.5	89.7	89.7	88.9	86.7	82.1
TOBAGE	Time Out BA-GE	88.9	88.6	88.3	86.6	89.5	89.6	88.6	88.2	87.4	85.7	76.7
TOGEMA	Time Out GE-MA	73.1	72.4	71.7	72.2	73.3	74.0	73.1	73.1	72.0	70.4	61.3
TOMAPHD	Time Out MA-Ph.D.	71.2	71.4	70.1	65.2	69.9	71.1	69.9	70.0	69.0	68.1	67.5
TOGEPHD	Time Out GE-Ph.D.	85.0	85.7	84.7	77.4	84.0	84.5	83.1	82.5	81.8	80.2	75.9
TICEPHD	Time In CE-Ph.D.	85.0	85.2	84.1	76.7	83.4	84.3	83.0	82.9	82.4	80.8	75.1
YEARSFT	Full-time enrollment	50.9	71.2	69.3	83.1	73.9	75.7	75.7	75.2	74.5	77.1	82.1
YEARSPT	Part-time enrollment	50.9	71.2	69.3	NA	NA	NA	NA	NA	NA	NA	NA
YEARSOUT	Not enrolled	50.9	71.2	69.3	NA	NA	NA	NA	NA	NA	NA	NA
PHDDISS	Field of Dissertation	NA	91.0	89.8	NA	NA	65.0**	92.7	93.3	92.4	92.0	88.5
SRCEPRIM	Primary Source of Support	74.5	72.3	71.7	75.8	77.7	69.7	66.1	72.4	74.9	87.9***	87.2
DEBTIND	Debt Indicator (incl. "No")	70.3****	90.8	90.9	92.2	93.1	93.3	92.8	92.8	92.4	91.1	88.5
PRESTAT	Predoctoral Status	91.4	91.2	90.7	92.4	93.5	93.5	93.1	92.9	92.5	91.7	87.6
PDOCSTAT	Postdoctoral Status	90.5	90.2	89.6	90.7	91.6	92.1	91.8	91.7	91.0	90.9	88.3
PDOCPLAN	Postdoctoral Plans	90.0	89.8	89.4	91.3	92.1	92.5	92.4	92.4	91.8	91.2	86.5

NOTE: NA = not available

*Because this field is not applicable to all doctorate recipients, the response rate will always be under 100%.

**The percentage was low in 1992 because 28% of the Ph.D.s completed earlier survey forms that did not request field of dissertation.

***As of FY 1996, the percentage included recipients who said they had no primary source of support.

****The percentage was low in 1987 because 22% of the Ph.D.s completed earlier survey forms that did not include the question on debt status.

Variable		1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Name	Field											
PDREASON	Reason for Postdoctoral Appointment	NA (NA)	NA (NA)	NA (NA)	NA (NA)	NA (NA)	NA (NA)	NA (NA)	NA (NA)	NA (NA)	NA (NA)	NA (NA)
PDSTDFLD	Postdoctoral Study Field	21.6 (93.8)	22.6 (95.0)	21.9 (94.7)	23.2 (95.2)	24.4 (95.1)	24.3 (93.4)	25.1 (94.0)	25.3 (93.8)	25.0 (93.9)	25.4 (97.4)	25.4
PDSTDSUP	Sources of Study Support	21.4 (92.9)	22.3 (93.8)	21.6 (93.6)	22.4 (91.8)	24.0 (93.4)	24.2 (92.9)	24.7 (92.4)	25.1 (93.1)	24.6 (92.5)	24.7 (94.9)	24.8
PDEMPLOY	Type of Employer	64.2 (95.4)	63.5 (95.7)	63.9 (96.1)	63.6 (94.9)	63.3 (94.9)	62.9 (94.3)	61.4 (93.5)	61.1 (93.5)	60.9 (93.4)	61.4 (94.2)	59.8 (94.1)
PDWKPRIM	Primary Work Activity	62.0 (92.2)	61.4 (92.6)	61.4 (92.4)	56.2 (83.8)	55.9 (83.8)	55.7 (83.5)	54.7 (83.3)	56.3 (86.1)	56.6 (86.8)	60.8 (93.3)	60.1 (94.5)
PDWKSEC	Secondary Work Activity	39.5 (58.7)	38.9 (58.6)	39.2 (58.9)	39.5 (58.9)	39.6 (59.3)	37.4 (56.0)	36.7 (55.9)	38.2 (58.4)	38.4 (58.8)	48.5 (74.4)	49.4 (77.7)
PDEMPFLD	Field of Employment	51.3 (76.3)	48.2 (72.7)	47.9 (72.1)	47.0 (70.2)	47.3 (70.8)	45.3 (68.0)	44.0 (67.0)	45.4 (69.4)	45.7 (70.1)	58.3 (89.6)	59.1 (93.0)
PDCONSID	Postdoctoral Appointment Consideration	NA (NA)	NA (NA)	NA (NA)	NA (NA)	NA (NA)	NA (NA)	NA (NA)	NA (NA)	NA (NA)	NA (NA)	NA
PDDECISN	Decision Against Postdoctoral	NA (NA)	NA (NA)	NA (NA)	NA (NA)	NA (NA)	NA (NA)	NA (NA)	NA (NA)	NA (NA)	NA (NA)	NA
PDAFFIL ***	Postdoctoral Affiliation	67.9	68.6	68.3	80.0	89.6	94.4	93.8	94.6	94.1	92.6	83.2

NOTE: NA = not available

*The percentages on the first line are based on the total doctoral cohort for a fiscal year. The percentages on the second line (enclosed in parentheses) are based on the number of recipients who reported plans for postdoctoral study.

**The percentages on the first line are based on the total doctoral cohort for a fiscal year. The percentages on the second line (enclosed in parentheses) are based on the number of recipients who reported plans for postdoctoral employment.

***In the 1997 dataset, this variable is broken into three parts (PDLOC, PDOCCODE, AND PDFORGN). The 1997 response rate is based on the presence of a valid value for any of the three subparts. This parallels what was reported for earlier rounds.

III. Derived Variables

The following derived variables deserve further explanation.

Postdoctoral Plans to Stay in the United States

In 1997, the planned postdoctoral location of Ph.D. recipients was coded in a new variable called PDLOC coded using FIPS codes for U.S. states and territories and countries. Values of PDLOC less than 100 indicate a postdoctoral location in the United States.

For years prior to 1997, this variable is based on PDAFFIL. If the first character of PDAFFIL is numeric, the respondent has indicated a planned postdoctoral affiliation in the United States. Non-numeric values in the first position of PDAFFIL (except “R”) indicate non-U.S. locations. A value of “R” for PDAFFIL signifies the respondent’s refusal to provide information.

For the interested user, the following is the SAS code used to produce “USPLAN” as an index of plans to stay in the United States following the Ph.D. using PDAFFIL1 (a variable created using the first character of PDAFFIL).

```
usplan=2;  
if pdaffil1 in ("0","1","2","3","4","5","6","7","8","9") then usplan=1;  
if pdaffil1 eq "R" then usplan=.;  
if pdaffil1 eq " " then usplan=.;
```

Firm Postdoctoral Plans

Postdoctoral Plans are coded using the values of PDOCSTAT which indicate that the Ph.D. recipients postdoctoral plans were definite at the time the survey was completed. That is, codes 0, 1, or A on PDOCSTAT indicate that the respondent had definite postdoctoral plans, whereas codes 2, 3, and 4 indicate that the respondent was still seeking to determine postdoctoral placement.

The following is the SAS code used to derive FIRMPLAN from PDOCSTAT :

```
if pdocstat in ("0","1","A") then firmplan=1; /* Definite */  
if pdocstat in ("2","3","4") firmplan=2; /* Seeking */  
if pdocstat eq " " then firmplan=.;
```

Firm Plans to Stay in the United States

This variable is derived from USPLAN and FIRMPLAN. A respondent was coded as having firm plans to stay in the United States if the reported postdoctoral location was in the United States and the reported postdoctoral plans were coded “definite.”

The following is the SAS code that creates the variable FIRMUS from USPLAN and FIRMPLAN as described above.

```
firmus=2;  
if (usplan eq 1 and firmplan eq 1) then firmus=1;  
if usplan eq . or firmplan eq . then firmus=.;
```

Primary Source of Graduate School Support

In 1995 the response rate to the question on primary sources of financial support was 74.8 percent. In 1996 and 1997, the response rate jumped to 87.9 and 87.2 percent, respectively. This increase in response was due to a revision of the questions on sources of support. In 1995 and earlier years the questionnaire asked the respondent to identify *and* rank their sources in one question. Starting in 1996, the questionnaire asked the respondent to identify all sources of support in one question and in a separate question asked them to indicate their primary and secondary sources. The separate question on primary/secondary sources also provided the opportunity to denote that the doctorate recipient had no primary or secondary sources of support.

Race/Ethnicity

Adjustments to numbers: Readers should keep in mind that fluctuations in numbers for a racial/ethnic group reflect to some degree any upward or downward change in both overall survey response and response to the racial/ethnic item. Since 1990 response to race/ethnicity has shown great improvement -- a result of new procedures for following up missing information. Race/ethnicity was not followed up prior to 1990.

All follow-up responses received before survey closure are included in the data presented in the *Summary Report* for that survey. Responses arriving after closure are included in the next year's report. The extension of survey closure dates in the past four years has allowed most follow-up responses to be received in time to be included in the *Summary Reports* for those surveys. Postsurvey adjustments were greatest for 1990 and 1991 data, much less for 1992, and minimal for 1993. In 1994 response to the racial/ethnic item reached 97 percent by survey closure -- the highest rate ever. Any postsurvey adjustments for 1997 data will be included in next year's report, but they are expected to be very slight because of the extended closure. Updated numbers for all recent years appear in Appendix Table B-2 in this report.

History of the racial/ethnic question: Although this item was first introduced to the Survey of Earned Doctorates in 1973, over 25 percent of recipients in 1973 and about 13 percent in 1974 either completed earlier questionnaires or provided unusable responses. Since 1975 the racial/ethnic data have been more reliable, with response rates ranging from 90.1 to 97.1 percent (the latter in 1994). The information on race/ethnicity presented in this report is limited to the period 1977 to 1997.

The racial/ethnic question has undergone several revisions over the years. In 1977 it was modified to correspond to a standard question format recommended by the Federal Interagency Committee on Education and adopted by the Office of Management and Budget (OMB) for use in federally sponsored surveys; and explanation of the effect of these changes is detailed on page

13 of *Summary Report 1977*. (Note: Changes in the OMB guidelines prompted the reclassification of persons having origins in the Indian subcontinent from the white category to the Asian category.) In 1980 the question was further revised in two ways: (1) the Hispanic category was subdivided into Puerto Rican, Mexican American, and other Hispanic, and (2) respondents were asked to check only one racial category. (Before 1980 doctorate recipients could check more than one category to indicate their race.) The item was modified again in 1982 to separate the questions on race and ethnicity. Since then, respondents have been asked to first check on of the four racial group categories (American Indian, Asian, black, or white) and then indicate whether or not they are Hispanic. *In this report, Ph.D.s who reported Hispanic heritage are classified as Hispanic regardless of their racial designations*; the remaining Ph.D.s are then counted in the respective racial groups. (Note: Doctorate recipients who checked the category “American Indian or Alaskan Native” are identified as “American Indian” in this report.)

Time to Doctorate

Total time to degree (TTD): TTD measures the total elapsed time between the baccalaureate and the doctorate (including time not enrolled in school.) TTD can be computed only for individuals whose baccalaureate year is known. Baccalaureate year is often obtained from commencement programs or doctorate institutions when not reported by the recipient.

Months are now included in the computation (see note below).

Registered time to degree (RTD): RTD gauges the time in attendance at colleges and universities between receipt of the baccalaureate and the doctorate. Enrollment may include years of attendance not related to a recipient’s doctoral program. RTD can only be computed for individuals who provided all years of college attendance after the baccalaureate.

Months are now included in the computation (see note below).

Note about medians: *The method of computing medians has been revised. Beginning with Summary Report 1994, months (of birth, baccalaureate, and doctorate) are included in the calculations whenever available; if months are missing, only years are used in the calculations. (However, medians are not computed for years prior to 1969 because doctorate month is unavailable for all Ph.D.s.) Medians presented in previous Summary Reports were based only on years. Some medians would be the same regardless of the method of computation, but the new method generally computes slightly different results. While differences are small (usually one- or two-tenths of a year), readers should consider these differences when comparing medians presented in the report with those in earlier reports.*